SECOND SERIES. No. 9.

AUGUST, MDCCCLXVI.

THE ZOOLOGIST:

A Monthly Journal

OF

NATURAL HISTORY,

FOR

RECORDING FACTS AND ANECDOTES

RELATING TO

QUADRUPEDS, BIRDS, REPTILES, FISHES AND INSECTS.

No. CCC. or S.S. No. 9.

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2nd. A number *after* the Latin name indicates the page in the 'Dictionary of British Birds' where a description of the bird is to be found: thus—

"Wryneck, *Yunx torquilla*, 394" indicates that this bird is described at page 394 of the 'Dictionary.'

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Notes on Alpine Entomology.
By T. V. WOLLASTON, Esq., M.A., F.L.S.

THE interesting paper of Mr. Albert Müller, in last month's 'Zoologist' (S. S. 273), seems to call for a few passing remarks; and as he has appealed to an observation or two of mine in the 'Variation of Species,' it will not be out of place if I supplement the facts which he has adduced by thanking him for the able and suggestive manner in which they have been brought to bear on certain specified peculiarities of Alpine Entomology.

The particular phenomenon to which Mr. Müller draws more immediate attention, and which was so carefully noticed by Mr. Pascoe, I have not myself observed; for my own researches, at very lofty altitudes, have been made chiefly in southern countries, where even the lower limits of the snow are at so high an elevation that they are comparatively difficult to reach; yet at the head of the St. Gothard Pass in the Alps, I well remember, during the month of May, to have been forcibly struck by the great accumulation of insect-life at the bottom of some rounded depressions in the snow, which latter, from a cause which I could not ascertain, had melted so as to expose the soil beneath it—thus forming, as it were, black oases amidst an ocean of unsullied white. They were mainly Coleoptera; and as I was sufficiently contented at the time merely to *collect* them, I omitted to take any particular note of the circumstances under which they were found. But if insects (at any rate dark-coloured ones) may retain warmth enough, even singly, to occasion small hollows in the snow, when, inebriated with excess of oxygen, they "gradually sink down" into their last resting-place, might not a hole thus unwittingly excavated serve as an occasional pit-fall for other specimens, the accumulated heat from which (even though exceedingly slight) would probably suffice to shape-out the little basins to which I have just alluded?

But there is evidently a distinction to be drawn here, which, although acknowledged, is scarcely perhaps sufficiently insisted upon by Mr. Müller; for the creatures which occupy the nival regions arrange themselves conspicuously under two heads—(1), those which are *confined* to the uplands (never descending into the tracts beneath; and (2), those which either wander thither of their own accord, or else are carried *nolens volens* by the currents of air from the plains. Now if it be really true that a small hollow in the snow can be caused by the

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settlement of an insect which becomes, as it were, so intoxicated with delight that it is kept stationary while providential Nature puts her melting process into operation, it seems to me, when looking at the *general* question of these depressions, that we must exempt species which are absolutely *peculiar* to the heights, from even a share in (at all events) the *commencement* of the phenomena; for it is hardly likely that *they* would become seriously affected by conditions of temperature which must take place annually within their appointed range, and which their life-histories would doubtless show us to be the rule rather than the exception. But the case is far otherwise with the denizens of a warmer zone; for if *they* perchance should find themselves, by the force of circumstances, in an atmosphere more frozen and rarified than that for which they were destined, the *results* which Mr. Müller has so graphically described, and which are apt to be experienced by ourselves when overtaken in the regions of perpetual snow, might be considered not only as possible, but as even *à priori* probable. And I should therefore argue, that the species thus acted upon, and ultimately destroyed, would not be the *strictly* "alpine" ones, but more often those which had been brought up from the lower districts.

The above conclusion would at least, I think, hold good in accounting for, at any rate the *beginnings* of cavities such as those which I myself met with; as well as for the entire elaboration of the small and cylindrical ones, observed by Mr. Pascoe, in which a *single* insect only appears to have been concerned. But it is not difficult to conceive that, where a nucleus has been established by a solitary individual (one probably from a more genial temperature), the hole thus commenced might sometimes prove a trap for even *peculiarly alpine* forms—which, in their turn, would contribute their quantum of united warmth, which they had previously absorbed from the direct rays of an unclouded sun, to increase the dimensions of the hollow. It would be by some such explanation as this that I should account for the fact that the Coleoptera which I took at the head of the St. Gothard Pass, within the little basins which had been shaped out in the snow, were for the most part such as are *exclusively alpine* in their habits. And, hence (I may add) follows the desirability of ascertaining for certain, in all instances, what the species actually are, for it is by that means alone that we can arrive at a true solution of the present problem; and that, consequently, any traveller who may have the opportunity of chronicling the phenomena which Mr. Müller has specified will perform a good work by doing so, and making the results known.

But, apart from the particular question of these small nival cavities, let me add a word or two on the interest which attaches itself to "alpine collecting" generally. That nearly all the phenomena, and the majority of species, which greet us in those lofty abodes are *new* to the naturalist who has never before ascended to within even a short distance of the eternal snow, is scarcely more than a truism; and some of the contingencies to which insects would seem to be liable in that land of wonders have been well stated by Mr. Müller. But, at the same time, let us not forget that the "Hand which has wisely provided that eggs, larvæ or pupæ will stand the severity of not only one but often several winters, in those tracts, before progressing to the next stage" is assuredly present no less to protect the denizens of the plains—where it often happens that the external conditions, whether of heat, cold or drought, are (apparently) as adverse to their continuance as could possibly be the case even on the upland heights. Thus, for instance, during the past winter, while cruising with Mr. Gray and the Rev. R. T. Lowe amongst the islands of the Cape Verde Archipelago, we were assured both in Fogo and Brava that it was *three years* since they had had rain! and the intense dryness of the entire group fully attested the truth of this statement. Our mission was principally for Coleoptera; and it became difficult to resist the inquiry as to how insect-life could possibly be sustained in a country which was thus reduced to the merest dust and scoriæ, occasionally so for several years together, consequent on the suppression of the autumnal showers. With the exception of a favoured spot here and there, usually at a high altitude and in the heart of the mountains, where a trickling stream (narrowed into a thread) seemed to carry along its course the remains of a scanty vegetation, or where an infinitesimal, slimy pool in some exhausted river-bed, told of water in more prosperous times, there was, in some of the islands, scarcely a green herb to be detected, at first sight, from the sea-level to the summits of the peaks. And this state of things, we were told, was apt to be prolonged to such an extent as to end in a total famine both to man and beast. Yet so surely as the "gates of heaven" are opened above the parched-up soil, it matters not for how long they were previously shut—all life bursts forth afresh, as if by magic, the hills become green, and insects (of which we saw the remains in abundance) teem amongst the herbage and under stones. Although dry to an excess everywhere, undoubtedly the *very* driest portions of those depauperated isles are the lower districts towards the coast; and they supply a marvellous illustration of how animal and vegetable life may be alike suspended in accordance with external contingencies, for almost an indefinite time, without running even a risk of ultimate destruction.

But the real delight of "alpine collecting" is not to be measured by any such considerations as those to which I have appealed. There are wonders enough at every step to assure the lowland naturalist that he is in a strange place, where every object of sight and sense must be noted—not merely with truthfulness and care, but with something bordering upon reverence. To be in close proximity with regions almost unknown is in itself a privilege not to be trifled with; but to have toiled there, through a weary way, with the sole purpose of scrutinizing Nature in her wildest moods, and of turning one's information to account, leaves on the mind a feeling of responsibility which none can understand but those by whom it has been experienced. This feeling perhaps is more or less impressed upon us in *every* unexplored country, while conducting our researches, but it is seldom so conspicuous as when great altitude invests the latter with an additional charm; for then it is that we seem to have reached at last the very climax from whence we may look down upon a new creation, and ensure anomalies at every turn. It was with some such previsions as these that I first pitched my tent on the extreme summit of Madeira (the glorious Ruivo, more than 6000 feet above the sea), and afterwards (at an altitude of at least 9000 feet) trod for the first time the snow-fields of Teneriffe. It may be perhaps that an undue prejudice in favour of the Canaries, after having ransacked assiduously the neighbouring archipelago, had inclined me to look for a richer harvest in Teneriffe than elsewhere; and certainly the great elevation of that island, the volcanic cone of which is more than 12,000 feet above the sea-level, would seem (thus far at least) to give it the place of honour throughout all the Atlantic, signalizing it emphatically as one of "creation's landmarks." But, whether this be the case or no, I cannot plead guilty to a shadow of disappointment (but altogether the reverse) when I was fortunate enough, day after day, to find myself far above the cloud-line, under a canopy of transcendant blue, in all the stillness and glitter of an alpine paradise. It was in May of 1859 that I became acquainted with those upland wilds; and the snow was then rapidly disappearing, except on the monstrous cone, which rose up straight in front of me—robed in a garment of unspotted white.

The cindery ridges and plains around its base were consequently in full glory, for the fierceness of an African sun had not yet parched the soil, which, wet from the general thaw, was already clothed, here and there, with a scanty vegetation, and had become suddenly rich with a Coleopterous Fauna of its own. The brilliancy of the atmosphere in that elevated region is indescribable; and the passing vapours which would ever and anon catch the apex of the Peak, and condense themselves into the most graceful and fantastic shapes,—sometimes radiating symmetrically round the uppermost point, like a fan of the thinnest gauze, and then disappear in an instant as if by magic,—were a constant source of admiration, so that the eye seemed never weary of feasting on their light and wondrous forms. But what charmed me most were the wiry bushes of the "Retama" (that noble Broom of the Teneriffian heights), the dense thickets of which, and grand isolated specimens, although interspersed with portions of yet unmelted snow, were just bursting into flower—solid masses of bloom, varying in colour from the purest white into a clear rosy pink. The excessive fragrance of these blossoms, rendered trebly delicious in an atmosphere thus rarified, is proverbial; and the inhabitants of the lower districts are wise enough to take advantage of the supply of honey to be obtained from them by occasionally sending up their bees *en masse*, to drink the purest nectar in an apiarian heaven. So powerful indeed is the scent from the thickly-laden branches of this stiff, contorted Broom, the rigid stems of which are implanted like bars of iron into the loose cindery stones amongst which they appear to revel, that not the bees alone, but every winged insect within a considerable distance, as though unable to resist the attraction, hurries off to the scene, to satiate itself, and to claim a share of Nature's bounty.

But I need not pursue the picture further; for the provident "collector," at the bare mention of the latter fact, would at once take the hint, and *look to his nets*. I can only say that *I* did so, and had no after reason to repent of that shrewd and sagacious step.

T. V. WOLLASTON.

Teignmouth, July 6, 1866.

Description of the Larva of Hipparchia Semele, with Notes on its Habits, Food, &c.—Eggs of this species were obtained in 1864 by Dr Knaggs, and sent to the Rev. J. Hellins on July 26th and August 3rd; some of them hatched August 8th, and others continuously for three or four days. The larvæ at first were ochreous, with a blackish interrupted dorsal line, and fed on Triticum repens, were very sluggish, often hiding low down amongst the grass, and hybernated when about four lines in length. One larva only survived the winter, and was kindly presented to me on the 13th May, 1865, by Mr. Hellins, to whom I am indebted for the following account of it. The larva had shown a partiality for Aira cæspitosa, previous to my receiving it, and on this it was therefore placed, being then about eight lines in length. On the 20th of May I chanced to dig up a rather larger larva of this species from a waste piece of sandy ground near the sea, amongst Aira præcox and other small grasses, which rendered the task of rearing doubly interesting, in observing the habits of each, kept separate and on different food. The captured larva, on being placed under a glass in a pot with its native growing food, immediately burrowed in the sandy earth, and the few times it was seen on the grass was always at night, and each morning brought evidence of its doing well by the diminished grass. About the 14th of June these indications ceased, and on the 23rd I searched for the pupa, and found it in a hollow space a quarter of an inch below the surface, the particles of sand and earth very slightly cohering together, and close to the roots of grass yet free from them. The pupa was obtuse, rounded, tumid and smooth, the abdominal rings scarcely visible, and wholly of a deep red mahogany colour. The perfect insect, a male, appeared July 24th. The larva, reared wholly in captivity from the egg, always remained on its rigid food, with its head uppermost, when feeding, which at first it did day and night till it was an inch long, from which time it fed only at night, remaining all day at rest on the grass, with its head downwards, in comparative darkness, amongst the lower parts of the stems. It never showed any disposition to burrow, though the soil was supplied for the purpose, until it was full fed, about the middle of June. The butterfly, a male, appeared on the 5th of August. No material difference existed between the two larvæ, excepting that the captured one was rather less bright and distinct in colour and markings than the other. The full grown larva is an inch and a half in length, tapering much to the anal forked extremity and a little towards the head, which is globular. Ground colour of the back a delicately mottled drab, with longitudinal stripes, broadest along the middle segments, *viz.* a dorsal stripe of olive-brown, very dark at the beginning of each segment, with a thin edging of brownish white. Three stripes along the subdorsal region, of which the first is composed of a double narrow line of yellowish brown, the second wider, of the mottled ground colour, edged above with paler and below with white, and the third of a similar width of dark gray-brown, edged above with black. Spiracular stripe broader and of nearly equal width, of pale ochreous-brown, edged both above and below with brownish white. The spiracles black. Belly and legs drab colour. Head brown, on which the principal stripes of the body are delicately marked with darker brown.—*William Buckler, in 'Entomologist's Monthly Magazine' for January*, 1866. [Mr. Logan, of Duddington, many years back published a very minute description of this larva and its economy, and a still prior account may be found in Sepp: the three admirably corroborate each other.—*Edward Newman*].

PROCEEDINGS OF SOCIETIES.

ENTOMOLOGICAL SOCIETY.

June 4, 1866.—Sir JOHN LUBBOCK, Bart., President, in the chair.

Additions to the Library.

The following donations were announced, and thanks voted to the donors:—'Proceedings of the Royal Society,' No. 83; presented by the Society. 'A Catalogue of Phytophaga,' Part 1, by the Rev. Hamlet Clark; by the Author. 'On the Structure of the Egg in Scatophaga,' and 'Description of the Skin cast by an Ephemeron, in its "Pseud-imago" condition,' by Tuffen West, F.L.S., &c.; by the Author. 'Notes upon some Odonata from the Isle of Pines,' by Samuel H. Scudder; by the Author. 'New Species of North American Coleoptera,' Part 1; 'List of the Coleoptera of North America,' Part 1; 'On the Species of Galeruca and allied Genera inhabiting North America;' 'Note on the Species of Myodites, *Latr.*, inhabiting North America;' and 'Remarks on Stylopidæ,' by John L. Leconte, M.D.; by the Author. 'The Zoologist' for June; by the Editor. 'The Entomologist's Monthly Magazine' for June; by the Editors.

The addition by purchase of the 131st livr. of the 'Genera des Coléoptères d'Europe' was also announced.

Election of Members.

Count George Mniszech, of Paris, was elected a Foreign Member. Osbert Salvin, Esq., M.A., F.L.S., of 16, Bolton's Grove, West Brompton, and Thomas Turner, Esq., of 5, Dix's Fields, Exeter, were elected Ordinary Members.

Exhibitions, &c.

The Secretary read a letter from Dr. Wallace, in which the writer expressed his regret that the drawing of the full-grown larva of Bombyx Cynthia given in his Essay on Ailanthiculture (Tr. Ent. Soc. 3rd Ser. vol. v. pl. xvi.) was not quite truthful, the reason being that the larvæ were not sent to the artist until the fourth week in October, when the weather had become wet and chilly and the food deficient, and the larvæ were in consequence half-starved and torpid; moreover, on their journey the gray-blue bloom was knocked off, and was not subsequently secreted; it had, therefore, been impossible for the artist to do full justice to the larva. Dr. Wallace added that he had had sent him some eggs of the Japanese oak-feeding silkworm, Bombyx Yamamai, the young larvæ of which had hatched out, and required his constant attention during the previous month.

Mr. Wilkinson read from the Report of Mr. Consul Zohrab on the trade of Berdiansk for the year 1865 (Commercial Reports received at the Foreign Office from Her Majesty's Consuls, presented to Parliament, February, 1866), the following extract, communicated by Prof. E. W. Brayley, of the London Institution:—

"The appearance of a poisonous black spider amongst the wheat at harvest time created for a few days a panic among the labouring classes. Wages rose to double their ordinary rate, and it was with difficulty the labourers could be induced to work. More than 300 persons were bitten by this venomous insect, but only three cases were reported to have proved fatal, and these deaths, it is supposed, are not to be attributed solely to the bite of the spider. Fortunately this visitation was restricted to one part of the town lands, otherwise the consequences might have been very serious. From some villages in this district news was received that the spider had also visited them. The bite of this insect was indicated by a hard white spot. The first symptoms experienced were alternate violent heat and cold, shortness of breath bordering on suffocation, an increased pulsation of the heart, and pains in the chest and back, then weakness in the legs and dizziness in the head. After a few hours these symptoms diminished, and in two days the patient was able to resume his work. The general remedy employed was to cup the poisoned part and liberally wash it with cold water. Some cauterized the place, but this remedy was not so efficacious, and it created, besides, a fresh wound. The first time this spider was seen at Berdiansk was in 1864, but very few persons were bitten by it. Last year, however, it increased to a most alarming extent. It was remarked that the spider was very active in killing locusts, on which it seemed principally to feed, and it was only when disturbed that it stung persons. The majority of the persons bitten did not know the cause of their illness, and it was only the same symptoms in each case that proved it to be the sting of the spider."

Mr. M'Lachlan exhibited the case of a caddis-worm which was found attached to a rush about two feet above the level of the adjacent water; it was of the genus Limnephilus, and he conceived that when, in accordance with the usual habit, the larva had fixed its case prior to the assumption of the pupa-form, the instinct of the creature had been at fault, and the larva had omitted to make allowance for the growth of the plant, by means of which the case had been raised above the water, and the pupa had consequently perished.

Mr. Stainton mentioned that from the galls on Gypsophila saxifraga, found at Mentone, of which he had exhibited a drawing at the previous Meeting (*ante*, p. x.), there had emerged two moths of the genus Gelechia, belonging to what he supposed he must call a new species allied to G. leucomelanella. The group of Gelechiæ, however, which fed on the Caryophyllaceæ were most difficult to deal with; new forms were continually discovered, intermediate between what have hitherto been considered distinct though closely-allied species; it was not improbable that other intermediate links would be supplied until the whole series, thus made continuous, would require to be united—should he say, into one *species?*

Mr. M'Lachlan thought the group in question was a good illustration of the "phytophagic species" of Mr. Walsh.

Mr. C. A. Wilson communicated a further instalment of his "Notes on the Buprestidæ of South Australia."

Prof. Westwood exhibited drawings of several species of Goliath beetles, which he proposed to describe, and for some to create new subgenera.

Mr. Pascoe exhibited two new species of Articerus, and read the following note respecting them:—

"Of the eight known species of Articerus, five are from Australia; three of these, described by Prof. Westwood, have short thick antennæ; another, described by the same author, has them remarkably curved; the species recently described by Mr.

Waterhouse has longer antennæ, but they are terminated by a compressed truncate club curved inwards at the apex. The two species before the Society have also long antennæ, but gradually enlarging from the base to the apex, in one of them, however, expanding rather more rapidly when approaching the tip; one is from Mr. Odewahn, of Gawler, South Australia; the other from the Rev. George Bostock, of Fremantle, West Australia; they may be thus differentiated:—

Articerus Odewahnii, n. sp.

A. pallide ferrugineus; capite prothoraceque subtiliter punctulatis; antennis basin versus abrupte angustioribus.

Long. lin. ¾.

Hab.—Gawler.

Articerus Bostockii, n. sp.

A. rufo-testaceus, elytris dilutioribus; capite prothoraceque subcrebre punctatis; antennis basi sensim angustioribus.

Long. lin. 1.

Hab.—Fremantle.

"The former has compressed antennæ, as may be seen by the section presented at the apex, whilst in the latter it is nearly or quite round. A. Odewahnii also has the head considerably smaller in proportion, and if examined sideways it will be found to be of nearly equal depth throughout; but the larger head of A. Bostockii begins to diminish under the eyes, and is drawn rapidly up so as to be scarcely more than half the depth at the apex. The elytra of A. Odewahnii are much smaller than those of the other species. In neither do the tibiæ present any appearance of angularity or toothing, but this may be because they are both females. Mr. Du Boulay thinks the antennæ are *flexible*, but in this Mr. Bostock does not agree. Referring to the species which I have named after him, Mr. Bostock writes as follows:—'The first caught was found (when disturbed?) on his back, and two ants at once seized him to carry him to a place of safety. . . . . . I saw another on a stick protruding from an under-ground nest, and as I approached nearer to capture it I plainly saw two ants, one on either side, seize it and hurry it down the hole. . . . . The latter specimen caught was resting with his body inclined at an angle of about 30°, and was bowing his head vertically and his antennæ laterally in a most amusing manner.' Mr. Bostock thinks there is a 'bag of ant-liquid beneath the fovea' (cavity on the abdomen?)."

Mr. Pascoe also exhibited a small collection of Coleoptera from Fremantle, placed in his hands by the Rev. Hamlet Clark, to whom it had been sent by the Rev. George Bostock. In addition to the species of Articerus above described, the collection included Anthicus strictus, *Er.*, and two probably new species, found in ants' nests, being, as Mr. Pascoe believed, the first instance of an Anthicus occurring in such a situation; a beautiful new species of Ptinus, Mezium sulcatum, two new species of Hyocis, Scopodes boops, *Er.*; two species of Platynotus, one certainly and the other probably new; a Cryptophagus, two species of Brachypeplus, a Scymnus, Uloma?, Platysoma, &c.; an insect of unknown genus of the size and outline of Corticaria serraticollis, *Duval*, but with very peculiar tarsi; and a new Mecynotarsus, of which the following diagnosis was read:—

" *Mecynotarsus albellus*, n. sp.

"M. testaceus, pube densa alba tectus; parte prothoracis protensa breviuscula, ovata, dentibus quadratis rubris undecim instructa; elytris humeris producto-rotundatis; pedibus antennisque testaceis.

Long. lin. 1¼.

Hab.—Fremantle."

But the most remarkable insect in the collection was an entirely new form, also found in ants' nests, for which the name of Ectrephes formicarum was proposed, and of which the following description was read:—

" ECTREPHES, n. g.

"Caput insertum, subtus inclinatum, fronte pro receptione antennarum profunde excavata. Oculi parvi, rotundati. Mandibulæ rostriformes. Antennæ tri-articulatæ; articulo basali breviter obconico; secundo minuto; tertio elongato, compresso, apice oblique truncato. Prothorax transversus, utrinque pone apicem emarginatus, lateribus carinato-alatis. Elytra breviter ovata, convexa. Femora et tibiæ compressæ; tarsi 5-articulati, elongati, filiformes.

" *Ectrephes formicarum*, n. sp.

" E. ommino fusco-castaneus; elytris nitidis, pilis minutis erectis valde dispersis.

Long. lin. 1.

Hab.—Fremantle.

"The position of Ectrephes is uncertain; the fact of the elytra closely embracing and covering the abdomen cuts it off from the Paussidæ; in its 3-jointed antennæ it approaches Gnostus, *Westw.*, another isolated genus. The antennæ arise from a cavity in front of the head, and the latter is so bent down that the mandibles almost touch the anterior coxæ. The metasternum is very short, and the intermediate and posterior coxæ are therefore closely approximate on each side, but widely apart as regards their fellows. The anterior coxæ are exserted, cylindrical and divergent. The abdominal segments appear to be only four in number, owing probably to the union of the second and third; counting it as one only, that segment is of large size, whilst the third is reduced to a mere line. I regret that I have not successfully extracted the mouth, but so far as I could judge the mentum was very small, with two large fusiform palpi; I could not distinguish the maxillary lobes, of which Gnostus has one only, and that very minute. I hope to give a figure of the insect, and to enter into further details on a future occasion."

Prof. Westwood considered Ectrephes to belong to the Paussidæ, notwithstanding that the abdomen was entirely covered by the elytra.

July 2, 1866.—Sir JOHN LUBBOCK, Bart., President, in the chair.

Additions to the Library.

The following donations were announced, and thanks voted to the donors:—Hewitson's 'Exotic Butterflies,' Part 59; presented by W. W. Saunders, Esq. 'The

Zoologist' for July; by the Editor. 'The Entomologist's Monthly Magazine' for July; by the Editors.

The following additions by purchase were also announced:—Aubé, 'Pselaphorum Monographia'; Chevrolat, 'Coléoptères du Mexique'; A. de Norguet, 'Catalogue des Coléoptères du Département du Nord'; J. Thomson, 'Arcana Naturæ'; Westwood, 'Arcana Entomologica.'

Election of Members.

The Hon. Thomas De Grey, M.P., of 23, Arlington Street, and Christopher Ward, Esq., of Halifax, were elected Members.

Exhibitions, &c.

Mr. Stainton exhibited larvæ of Laverna phragmitella in a head of Typha latifolia; and specimens of the Gelechia, very like G. leucomelanella, bred from Gypsophila saxifraga, to which reference was made at the two previous Meetings.

Mr. Bond exhibited a specimen of Dianthæcia cæsia taken by Mr. Hopley in the Isle of Man, where the species had recently been discovered by Mr. Gregson (see 'The Entomologist,' vol. iii. p. 103).

Mr. Edwin Shepherd exhibited an old specimen of the same species, from Bentley's collection, labelled "cæsia," in the hand-writing of the late Mr. Bentley. This specimen was reputed to have been captured in Yorkshire; and the fact that it precisely resembled the specimens from the Isle of Man (which differed from the typical Continental form of the insect, and seemed to be a permanent variety) was in favour of the British origin of Mr. Bentley's specimen.

Mr. Bond also exhibited a Phycita captured in the Isle of Man by Mr. Hopley, and which he believed would prove to be a new species; specimens of Sesia philanthiformis bred from pupæ sent to him by Mr. Greening from the Isle of Man; and a series of bred specimens of Papilio Machaon from Wicken Fen, Cambridgeshire, remarkable for their large size, as were most of the specimens of that butterfly which he had bred during the present season.

Mr. Edward Saunders exhibited a collection of Mexican butterflies, amongst which were Papilio Asclepias and others of that genus, and a gynandromorphous Euterpe (sp.?), of which the right side was male, the left female.

Mr. S. Stevens exhibited Dicranocephala Wallichii from North India, and D. Bowringii from South China.

The Secretary read the following extracts from the 'Journal of the Society of Arts' of 29th June, 1866:—

"*Insect Wax.*—The trade in this article in China is large. In 1864, from the single port of Hankow alone, 5100 cwt. were exported. It is taken by the Chinese as medicine, but is principally used as stearine in the manufacture of candles. It is one of the most valuable of the many products of Sze-Chuen, being worth sixty and seventy taels per picul (133 lbs). The wax is deposited, for the protection of its eggs, by an insect which inhabits the trees on which the wax is secreted. The formation of the wax was a subject which occupied the especial attention of M. Simon, a French savant, who, a year or two ago, passed a considerable time in the interior, during which he is said to have traversed the greater portion of Sze-Chuen, and to have reached the eastern confines of Thibet." (See Proc. Ent. Soc. 1853, pp. 93-95, as to this Coccus-product).

"*Protection of Trees from Insects.*—The following simple method of preserving fruit from the ravages of insects is recommended by the Imperial Society of Practical Horticulture of the Rhone, and by the director of the School of Arboriculture of the Parc de la Fête d'Or at Lyons. The quantity of fruit destroyed by insects that deposit their eggs in the blossoms is enormous. These creatures are said to have a great antipathy to vinegar, the mere odour of which is enough to drive them away, and, in some cases, to destroy them, and nothing more is required than to sprinkle the branches with a mixture of vinegar and water at the moment the blossoms begin to appear. The mixture recommended consists of one part of vinegar to nine parts of water, but as French vinegar is very strong, perhaps the amount of water should be less when English vinegar is used. When the liquids are well mixed, the solution is to be sprinkled over the flower-buds by means of a garden engine or syringe, or even with a watering-pot with a fine rose. M. Denis, the director of the school referred to, tried the experiment last year, and reports that fruit trees so treated were covered with fruit, while those to which the acidulated water was not applied bore scarcely any. The other remedy proposed is against ants and other insects which mount the stems of trees. Take common lamp-oil, and expose it in the sun for three or four days, or until it acquires a gummy consistency and very disagreeable smell, then with a small paint-brush paint around the tree at about two feet from the ground, a band of the oil two inches wide, repeating the operation for three or four successive days. It is said that this method will protect the tree for four years at least. Perhaps coal tar might be found to answer the same purpose."

Mr. Stainton said that he had recently received a communication from M. Millière respecting the injury done to crops of rye in the neighbourhood of St. Etienne; Dr. Maurice, of that place, had directed his attention to the subject, but being unable to detect the author of the so-called "epidemic in the rye," had applied to M. Millière. Mr. Stainton believed that the injury was caused by the larva of the Micro-Lepidopterous Ochsenheimeria taurella, which by burrowing in the stem caused the ear to wither away.

Mr. Pascoe said that last year (see 'Proceedings,' 1865, p. 90) he had read a note respecting insects alighting on the snow in high mountain regions, and sinking into it from the melting of the snow by the radiation of heat from the insect; in 'The 'Zoologist' for the present month, Mr. Albert Müller, in commenting on the above communication, quotes from F. von Tschudi's 'Thierleben der Alpenwelt' the following passage:—"Winged insects, which are often carried by the wind to the upper snow-fields, will sink into these sometimes two feet deep, and it has been observed that these creatures settle voluntarily on the 'firn' [that state of the snow when its surface is held together by thin plates or crystals of ice is so designated], extending their wings and limbs, and that they rest in this position at their ease without moving, it being probable that they enjoy the absorption of the oxygen of the 'firn.' If they are taken up and removed to a stone or a piece of wood, they will at once proceed to the 'firn,' where they extend themselves as if inebriated, and gradually sink in, (seemingly) in full enjoyment. Dug out of a depth of two feet, they sometimes get lively again very quickly; otherwise, if left to themselves, they soon perish and at once get decomposed, and then the sinking in will cease. It has been tried to place dead insects on the 'firn,' when the body was found to swell up to a soft mass, then to shrink very much and afterwards to decay; after this the 'firn' closes itself over it, which does not easily happen with living insects." Mr. Müller suggests that the lumps of peat found in several of the holes were the sediment of the decayed bodies of the insects, perhaps increased in size by dust or fine sand so often carried by heavy gales; and adopts the theory that the holes were formed by the radiation of heat from the insects. Mr. Pascoe did not, however, believe that radiation alone would account for insects sinking to the depth of two feet; he thought that long before they reached such a depth they would have exhausted the heat already absorbed, and would be concealed from the sun's rays by the imminent snow, and thus be prevented from absorbing more heat. On the Monte Moro the holes were about an inch in depth.

Prof. Westwood had observed bees which had been tempted out of the hive by early sunshine to fall on the snow; becoming benumbed by the cold, they lay without action, and gradually descended, so far at all events as that the whole of the body was below the level of the snow.

Prof. Brayley (who was present as a visitor) criticized von Tschudi's explanation of the reason for the insects settling on the 'firn,' and wished to know whence the oxygen was supposed to be derived; he suspected that von Tschudi had in his mind the old and exploded notion that pure oxygen was given off during the melting of snow, or that the water of melted snow contained an extraordinary quantity of oxygen. Insects, however small, would from the texture of their wings absorb heat very readily, and when placed on the snow they would by radiation give it off again, probably with equal rapidity; the melting of the snow, the formation of a cavity, and the descent of the insect, would be the natural result; but he was not able to account for an insect sinking to the considerable depth of two feet, as mentioned by von Tschudi. He should like to ask Mr. Pascoe whether the diameter of the hole in the snow greatly exceeded the expanse of the out-stretched insect? He imagined it would not.

Mr. Pascoe replied that the insects, when taken out of the cavities, were wet and limp, and their wings became clogged together, so that he could not speak with accuracy as to their admeasurement; he thought, however, that the breadth of the expanded wings would be nearly equal to the diameter of the hole.

The President said that he also had noticed similar holes in the snow when crossing some of the Alpine passes, though at the time he had not bestowed upon them the attention which it now appeared they deserved.

The President called attention to a paper by M. Balbiani, published in the 'Comptes Rendus,' June 4, 1866, in which the writer propounded a theory that the Aphides are hermaphroditic. According to M. Balbiani's observations, each ovarian tube possesses an enlarged end which contains a group of cells; one of these, which occupies the centre and is surrounded by the others, is the most important, "car elle représente l'élément générateur ou la cellule mère de tous les ovules qui, dans chaque gaine, sont destinés à se transformer en embryons;" the peripheral cells nourish the central one; when the ovule enters the ovarian tube, it possesses a germinative vesicle and spot; the latter soon disappears, and after it the vesicle also; during this time many nuclei become apparent in the surface of the vitellus, and condense round themselves the homogeneous substance of which it consists; these are the blastodermic cells, which at this period are not surrounded by any membrane; the cells increase in number so as to cover the whole egg; after awhile an opening commences at the posterior end, and from it some of the contents protrude like a hernia; a delicate membrane is then visible inside the blastodermic cells; the hernial portion forms a connexion with the epithelial cells, and, when this is done, the vitelline vesicle contracts inside the blastoderm and divides into two secondary vesicles, of which the posterior one adheres to the epithelium, while the other remains free; these vesicles or cellules are the embryos of the sexual elements; each covers itself on the surface with a generation of small cellules which grow and continue to develope others; the posterior group is male, the anterior (the free one) is female; the latter remain colourless and are smaller than the male cellules, which become green or yellow (this is the pseudo-vitellus of Huxley); the mother vesicle soon disappears, while the male one increases and constitutes a reservoir of fecundating corpuscles; up to this time the embryonal development has not commenced, but from this point it proceeds regularly until the birth of the young Aphis.

Prof. Westwood was reminded, by the mention of Aphides, of a circumstance which had recently puzzled him. He had at Oxford some rose-trees which did not grow in the spring, but had only lately thrown out shoots; no sooner did a shoot appear, no matter how minute, than a fine fat Aphis was found upon it, and though the trees were carefully cleaned daily, yet morning after morning a fresh Aphis was on each bud. The Aphides were all apterous; they could scarcely have been blown upon the plants by the wind, since they occurred so constantly, and always on the youngest buds; the roses were planted away from any overhanging trees or shrubs; and he did not think the insects were hatched on the buds, since this would under the circumstances have required a retardation of the development of the eggs in order to keep time with the retarded development of the buds; he could only conclude that each night they had crawled up from the ground, but it was curious that they should be found exclusively on the smallest last-developed shoots.

Mr. Edward Sheppard had noticed the same thing on the young buds of jasmine, as if the Aphides had been born on and with the buds.

The Rev. Douglas C. Timins communicated the following notes on the larvæ of Charaxes Jasius and Melitæa Provencialis:—

"It may interest some entomologists to know that I have succeeded in rearing the larvæ of the splendid Charaxes Jasius in England. In January of this year I obtained some young larvæ at Hyères. They grow very slowly, and in April were not nearly full fed. I brought them to England, and carefully fed them with Arbutus Unedo, placing their cage in the sun (they only feed in sun-light, as far as I have observed), and about the 15th of May some of them assumed the pupa state. On the 5th of June two specimens emerged; one, however, had the wings crippled. I have also bred Hesperia Altheæ and Melitæa Provencialis. The larva of the latter has not been described; its length when full fed is about an inch and a half; head black; body black, velvety, the back powdered with white dots; a stripe of white dots along each side; numerous jet-black spines on each segment; fore legs reddish brown, hind legs red; in societies, on Lonicera Balearica. The pupa is remarkably handsome, being white, with golden yellow rings chequered with black on each abdominal segment, and having the wing-cases marked with golden yellow and black; it is of course suspended by the tail. The larvæ were obtained at Hyères on the 21st of March, changed to pupæ at Hyères between the 2nd and 7th of April, and the first imago emerged at Winchelsea on the 6th of June. M. Provencialis appears to be merely a local variety of M. Desfontainesii, or perhaps Provencialis is the type, and Desfontainesii the variety."

With reference to the last remark, Mr. M'Lachlan observed that Melitæa Desfontainesii was commonly considered to be only a variety of M. Artemis; an opinion in which Mr. Bates said that he concurred.

New Part of 'Transactions.'

A new part of the 'Transactions' (Trans. Ent. Soc., third series, vol. v. part 3), being the third Part published during the present year, was on the table.—*J. W. D.*

Note on the Shrew (Sorex rusticus?).—I picked up lately, dead, on one of our marsh roads, two shrew-mice, belonging apparently to a distinct species from either the water or oared shrews, as described in Bell's 'British Quadrupeds.' I found the little animals sitting face to face in so perfectly natural a position, that it was only on taking them up I satisfied myself they were really dead. They were both males, full grown and in good condition, except a slight stain of blood on their chests, exhibiting no trace whatever of ill usage. I am quite at a loss to account for their death, and can only conjecture they may have fallen in deadly combat, having fought it out to the bitter end. I find these little quadrupeds exhibit most nearly the characteristics of a shrew described by Mr. Macgillivray, in his 'British Mammalia' (vol. xvii. of the 'Naturalist's Library'), and, as he there states, first described by Dr. Fleming in the second volume of the 'Transactions of the Wernerian Society,' under the name of Sorex fodiens, and again in the Appendix to Macgillivray's work they seem identical with the specific characteristics given of the square-tailed shrew (*S. tetragonurus*), as named by the Rev. L. Jenyns, in his paper on the British shrews, published in the 'Annals of Natural History' (vol. i. p. 417). Appended I give their exact measurement and specific characteristics, trusting that some reader of the 'Zoologist' will be able to identify and name them for me:—

Length of shrew from nose to end of tail . . .	$4\frac{11}{20}$ inches.
" body without tail	$2\frac{13}{20}$ "
" tail	$1\frac{9}{10}$ inch.
" from ear to end of snout	$\frac{9}{10}$ "

Incisors red at the tip; fur very close and velvety. Colour above black, below gray, the black colour of the back gradually merging into the gray of the under parts, and not marked by any decided line as in S. fodiens; a dark spot near the centre of the throat, with a streak of the same colour running down the centre of the belly; a dark triangular spot at the base of the tail. Tail quadrangular, slightly compressed towards the tip; the under parts of the tail covered with very short and close silvery hairs, the sides with short close dark hairs; the upper part of the tail was entirely destitute of hair, except near the end, where it was covered with dark close hairs as on the side. Ears small and buried in the fur, a white spot of fur marking the place. Eyes extremely small and buried in the fur, a small white hair spot above each eye. Whiskers long and silvery. Snout lighter coloured than the back, a rather indistinct and broad streak of the dark back colour running down the centre of the nose. Muzzle black. Feet large: toes bordered and covered above with silvery hairs; under parts of feet gray; claws white.—*John Cordeaux; Great Cotes, Ulceby, June 23, 1866.*

Letters on Ornithology. By HARRY BLAKE-KNOX, Esq.

LETTER II.—*Being a detailed Account of the Summer Plumages of the Shag; also an Account of its Habits in Confinement.*

This letter by right should have been on the cormorant, but as there are still some little things respecting this bird that I am not quite confident of, and as I shall never write without proof and honesty, I must forbear for a time longer before sending my letter to the publisher; I therefore take this opportunity of adding some plumages to my already long list of the changes of the shag. I find that without these additional plumages my Natural History would be wanting in clearness and decision, but that with them any one can trace and distinguish the bird at all seasons. I allude to the second, third, and adult summer dress.

Addenda.—The following words were omitted in copying, on account of the italicizing lines running partially through them:—Page 254, No. 5, Link 2. * * * * "This family never moults on the back or breast *except during the summer moults of the young, and the autumn moult of the adult*, but the feathers grow, as it were, without dropping out. In youth the feathers wear out and revive again, but in the adult they never fade much. I have a beautiful specimen of the shag now before me, in second winter, showing transmutation beautifully and lucidly. The head, neck, quills, tail and some of the large scapulars moult, also the down of the entire body *yearly* (*for some adult shags do not moult anywhere else*); but the feathers of the shoulders, back, scapulars, rump, wing-coverts, &c., the breast, sides, belly, &c., never, to my knowledge, fall from the bird, *except as above, the various winter plumages taking place by transmutation; lost feathers are always being renewed by moult.* Adults do not necessarily moult anywhere, but the quills, the crest and the down, in the year. These omissions must be pardoned, as I wrote in great haste at the time, in a strong gale in the cabin of a trawler, and while italicizing must have drawn my pen unequally through instead of under the words. So incessant are the transmutations and fadings of the feathers of the immature shag that I find, for the thorough practical ornithologist, I have hardly detailed closely enough the second and third summer plumages of the bird; but with the following additions to my first letter I flatter myself that no future writer can be more exact.

After No. 8. *Second Summer. One year old.*—June.

Add No. 8¼. *Second Summer. One year old.*—June. Though healthy birds, by the middle of June, have generally changed the plumage of the back, scapulars, shoulders and rump, yet in many cases some of the first winter feathers, worn to skeletons, still remain, and again in others none of the under parts have by this time begun to fall out. This class can be confounded with no other age. (In collection).

No 8½. *Second Summer. One year old.*—June. Since October a constant transmutation and fading of the feathers have been going on (Nos. 5, 6, 7, 8), till, by the middle or latter end of June, the feathers after living a year fall from the bird. From the middle of June many new feathers have come through the old plumage and by moult. The new feathers are like the adult in the back, scapulars and rump; those of first winter that transmuted from February to the adult colour are now very faded and generally fringed with tawny, and those that never transmuted are uniform dirty brown. In the wing-coverts the new feathers are like the adult's, but fringed with tawny from the pen. The new feathers of the under parts are mouse-colour, often with tawny fringe. (In collection). This plumage is very transient and fades very quickly.

No. 8¾. By end of July and beginning of August this moult is over, and the feathers first moulted very faded.

Now No. 9. *Second Autumn.* October.

After No. 13. *Second Spring.* May.—

Add No. 13¼. *Second Spring.*—End of May. A very faded addition of the adult, and easily known from it at a glance by the dingy under parts, *often* by the *white chin still*, rarely by a *pale vent*, frequently by the bare flesh at bill not yet turned *black*.

No. 13½. *Third Summer.*—June. Much more faded than in May; the under parts have faded to blackish brown, and even mouse-colour, sometimes the fringes have become tawny and the vent grayish. The skin at under mandible has turned the *colour of the adult,—black with yellow warts;* the feet have grown *much darker.* The old feathers of the scapulars have become dead, and look as if *dirtied with mud.* The coverts have faded to brown, and the rest of the plumage of the upper surface has faded from the adult green to dull green-brown. (In collection).

Diagnosis: between Second and Third Summer.—This age *sometimes* looks like the second summer at the same time, particularly should the under parts of the third summer have faded to *mouse-colour* and the vent to *whitish.* The italics are sufficient diagnosis—the old feathers of second summer wearing to *brown-green* with a *tawny fringe,* and those of third summer appearing as if *muddied,* unlike any other stage. Should any of the first winter feathers untransmuted still be in the scapulars no diagnosis is necessary.

No. 13¾. *Third Summer.*—June. Since last June the old feathers have undergone the autumn fade (No. 9); the transmutation from November till February (No. 10—13), and the fade to June, when they die, after a life of a year. By the middle of June the moult begins, and is finished generally by August, sometimes in July. The new feathers are like the adults, but fade. (In collection).

In No. 13, had I written April instead of May, and in No. 14 August for July, I should have matched the greater bulk of the bird better, but as it is they are correct. Do not censure me, ye who know not the sea-birds, but bear in mind that if a bird's eggs are taken the future young will be a fortnight late; if the young, a full month or six weeks; only for this the plumages would run "as smooth as a marriage bell."

No. 19. Adult in June. The crest is lost after hatching, not because the young are hatched, but because it has worn out. If the bird was robbed of its young it would undoubtedly breed again without any crest. One bird shot on the 27th of June, off the nest, had one crest-feather still in the head and several stumps. The other plumage is so in January. In birds of three years old the plumage of the scapulars becomes muddy, and is undoubtedly renewed in the autumn. Many adults do not moult anything but the quills and large scapulars and the crest, the rest of the plumage transmuting. In very old birds the bill is all black. The adult moult begins after the young leave the nest. (In collection.)

The Shag in Confinement.—In confinement the shag, notwithstanding all that is said to the contrary, is easily tamed, as I have often proved, and very rare and interesting pets they make, if plenty of room and water be given them, with a free use of their wings and an abundance of fresh fish. I have kept many shags and cormorants, but have too often been obliged to set them at liberty during spring, on account of the great difficulty in obtaining fish: for weeks here, in spring and winter, we dare not go to sea. Any that I have kept have been taken from the sea, and never from the nest, most generally by a slight wound in the head; two were from the throats of the angler (*Lophius piscatorius*). Last winter I kept five; one got drowned, three died from being fed on bad fish, and one only remains with me now. One of those that died was a most interesting bird—a female, though, notwithstanding its sex, christened "Dick" by my butler (who, by the bye, is an original Irishman, a bit of a Micky Free, and as fond of birds as his master). Well, poor Dick first came to know this character by a grain of his No. 2 shot passing through one eye and out of the other. Though his tears could not cure or alleviate the poor thing's sufferings, still his unremitting future kindness, and a little of my healing art, did in the end totally restore Dick to health, but never to sight. For four days she never moved from a standing posture on a "crab cleave," with the bill buried in the feathers of the back. At the end of the fourth day we forced a herring down her throat, and from that out two a day; on the sixth day she showed no more affectation, but took the fish herself, and from that out Dick was a tamed bird. Very soon, too, Dick came to know her name, and a "Come, Dick," would rouse all her energies, and she would come direct to the voice, even feeling her way round corners by her bill, as a blind man would with a stick. When at your leg she would gently pull your trousers, as if fancying you were blind too, and did not know that she was beside you. Soon the human voice became music to Dick, and from the yard she would grope her way into the kitchen, to the fire, where the women would be talking, and stand on one leg before the genial blaze or extend her wings to it. All her actions were directed by the bill, and, as I said before, it acted like a blind man's staff to her. She could find her way to her pond in the morning, and wash in it, or grope about in it for pieces of fish, which when the bird touched she knew from anything else. So sensitive is the feeling power of the bill that pieces of fish were never swallowed against the scales, but invariably turned in it by a succession of small catches. This lasted for a time, but, like all pets, female Dick died, after a feed of stale conger. Other birds with sight became equally tame with Dick, and would never attempt to fly away. About eight each morning, with a dish of fish, I go into the aviary, and am set upon by shags, gulls, cormorants, magpies and a kestrel falcon, all striving for their share, for I have them piscivorous, even the falcon; a dozen of herrings are thrown into the pond, and every shag is beneath the water in an instant, sometimes even snapping the fish before it touches the water. Should the fish be large I cut them on the top of a shed, which acts the part of a cave for the shags, and with the magpies on my shoulder and the cormorants and shags on the shed, I have a busy time to give each his due. So fearless are the shags that they will take the fish from under the knife; their dart is unerring, and if fish be thrown them it is unfailingly caught before touching the ground, and so quickly that no opening of the bill can be seen. After feeding they invariably wash, thoroughly saturating the feathers by striking the closed wing on the rump, lying on one side and splashing round and round, beating the water with outspread wings and diving. When well drenched they get on the edge of the tank, the water dripping off, and furiously shake the wings, and wag the tail till it sometimes hums; they then stand with the body horizontal and beat the closed wings on the back. The sun is next sought for, and the highest point to perch on attained; here the wings are spread and fanned, the feathers preened and insects removed. They are fed again at two and again at six, so that their lives are made up of feeding, washing, drying and sleeping. In winter they always stand, but in the breeding season they lie down and also squat like the divers: this habit, in May and June, has struck me very forcibly, as being a means of Nature to naturalize the bird to the incubating position, for females of a year old will thus sit for hours, the same as adults, and only in these months. Another strange thing is the much smaller quantity eaten in summer than in winter: this I cannot but believe an economy of Nature, adapting the bird to privation itself that it may not stint its young. Once the bird has gone to roost you could not persuade it to eat another morsel. When very hungry their loud hoarse "gauk" is repeatedly uttered, and woe to the stranger that enters the aviary: at these times the eyes attain a most malevolent sparkling look, and the bird is not the thing to play with. The hook of the bill can be driven through the hand, and the edges of the mandibles will cut like a knife. One of the ugliest cuts I have ever seen given was by a shag, the large vein on the back of the hand being torn up. To those they know the cry is low, rather musical, but hoarse, and speaks affection as plainly as words. Among themselves they rarely fight, but show no friendship to the gulls, who always are ready to attack and rob them when trying to swallow a fish. The gull is generally victorious, and will often pull a herring from the shag's throat, but sometimes a broken leg or wing is the only reward for his temerity. Not one of them dare touch the kestrel. Should I go out to them with a yellow oiled calico suit and a sou'-wester on, they will dart into the water and remain under a minute or more at a time; so saturated are the feathers by this submersion that the bird looks as if made of gutta percha: its travelling speed when thus wet must be enormous, as it gives no resistance to the water. At other times they will follow me like dogs. When jumping out of the tank the tail only is some times used; it is widely spread, and by a downward stroke jerks the bird out of the water. In climbing the hook of the bill is used, and this must be very useful when the bird builds in holes, as it does frequently at Lambay. Short as this account is, I hope it will please those who asked me to write it, but the many little things in the habits of the shag that could not be described clearly on paper, will reward any one, should they even have to pay £4 or £5 a-year for fish to keep them: a clear idea of transmutation is cheaply bought at this sum. The best time for that is in the second winter.

HARRY BLAKE-KNOX.

Dalkey, County Dublin, June, 1866.

Errata in Letter No. 1.— Page 246, line 31, "shots," not "shot." Page 249, line 8, "lays," not "lugs." Page 254, line 28, "tint," not "tail." Page 257, lines 4, 5, 6, I did not write "mandible" in the plural. In the heading of the letter the author wrote "genus" instead of "species."—*H. Blake-Knox.*

Ornithological Notes from West Sussex.

By W. JEFFERY, jun., Esq.

(Continued from S. S. 260.)

MAY AND JUNE, 1866.

May 1st. Flycatcher and turtle dove appear.

May 3rd. Nightjar appears.

The first few days of May were bitterly cold, to such an extent even that swallows, in many places, died from its effects, and others were knocked down with sticks, &c. I imagine that the cold, having cut off their supply of food, in the way of insects, was the primary cause of the swallows suffering. Nevertheless the flycatcher, turtle dove and nightjar were here early, though the flycatcher, which I saw on the 1st of May, looked dreadfully cut up.

Golden Oriole.—This species appears to have been observed pretty well all along the south coast this spring. On the 5th of May a pair, male and female, were killed at Sidlesham, about five miles south of Chichester. There is a female in the Chichester Museum, which was shot near the same place in May, 1853, about which period several others were obtained in Sussex.

Nightingale.—May 13. Found a nest of this bird, three feet from the ground, built in some dead wood which had fallen on a heap of bramble. Hitherto all the nests of this species which I have seen *in situ* have been on the ground, or at least only slightly raised from it by decaying vegetation or something of that nature. Yarrell says its nest is "almost always placed on the ground." But in a small work which I have seen, by the Rev. J. C. Atkinson, that author states, as the result of his experience, that it is *not* usually placed on the ground. It would be interesting to ascertain if the placing of its nest varies in different districts.

Grasshopper Warbler.—I was so fortunate, on the 19th of May, as to find, quite accidentally, two nests of this warbler. It is generally understood that its nest is extremely difficult to find: neither of these nests, however, was concealed with greater care than the nest of the common whitethroat usually is, both being built in tufts of coarse grass, the tops of the grass just drooping over the nest. These nests were situated in a small wet copse, where the underwood is patchy and the bottom thickly overgrown with grass. Another nest of the grasshopper warbler, which I found on the 16th of May, 1864, was placed in a small thick crab-bush: this also I discovered by accident, and although I have spent hours in looking for their nest, have never found one when actually searching for it. These three nests each contained five eggs when taken. The grasshopper warbler is not by any means numerous here, but is to be found in various localities, from the top of the downs to the vicinity of the sea-coast.

Waders.—During the last fortnight in May the waders were very plentiful about the coast and harbours, many of them in full summer plumage, others in the transition state. The cold north-easterly winds that prevailed at this time probably induced them to linger about the south coast longer than they are in the habit of doing while on the vernal migration. Amongst others gray plovers, some in perfect summer plumage, in which state they are not unfrequently met with at this season; turnstones, in flocks of fifteen to twenty; sanderlings, rather scarce (one obtained on the 25th in full summer dress); oystercatchers, curlews, whimbrels, redshanks, greenshanks, bartailed godwits and knots: neither of the four last named were very plentiful, but examples obtained in pretty good plumage.

Terns.—Terns have also been pretty numerous: one man shot thirteen lesser terns at two shots.

Oystercatcher.—The stomach of an oystercatcher, examined on the 22nd of May, contained cockles out of the shells. The bill of this bird seems admirably suited to its work, but whether it is strong enough to entitle it to its name of "oystercatcher" I am not prepared to say. The ends of the mandibles must, of course, wear away with constant use, and consequently must in some way be renewed. This, I am inclined to surmise, is effected by a gradual growth, after the manner of our own finger-nails. I remember having, a year or two ago, seen some of these birds in the Gardens of the Zoological Society, in Regent's Park, and remarking that their bills were much elongated—to such an extent even that the mandibles crossed at the tips, something like those of the crossbill: in their state of captivity, seemingly, these birds had not sufficient work for their bills to keep them worn down as Nature had intended.

Dotterell.—Mr. Cordeaux asks (S. S. 294) for information respecting the dotterell. I can only supply negative information, *viz.* that it is not a plentiful species in West Sussex. On the 25th of May, 1859, three examples were procured at Runcton, near Chichester, of which I have one, a male. Since that time I am not aware of its having occurred in this part of the county. It would appear to be rather more common in East Sussex. Mr. Knox, in his 'Systematic Catalogue' of Sussex birds, says, "Several are killed every year in the neighbourhood of Alfriston. Is frequently met with near Hailsham and Battle. Rare in the western division of the county. The line of its vernal migration would appear to be north-east. Does not breed in Sussex," &c. Probably since this was written it has become more scarce. Mr. Dutton informs us (Zool. 9099) that it occurs "occasionally" in the neighbourhood of Eastbourne.

Egg-destroyers.—In the last number of the 'Zoologist' (S. S. 310) an instance is given of a cuckoo sucking partridge's eggs. One would have thought that the shell of the partridge's egg would have proved too strong for the bill of the cuckoo to pierce, but here we have plain evidence of the fact. I have frequently doubted if the cuckoo really does suck eggs, and perhaps others may have shared this doubt; for though I have often found egg-shells of blackbird, thrush, &c., in places frequented by cuckoos, I have always failed in actually proving the cuckoo the culprit. But the cuckoo does not stand alone in this egg-destroying propensity, for besides several of the crow tribe, which are well known to be adepts at it, some of the smaller birds, and I incline to think quadrupeds, are depredators in this line. A pair of robins built a nest and laid eggs in our garden this year, as did also a blackbird; in both these cases the eggs were destroyed by sparrows, perhaps more out of a love of mischief than from a liking for their contents. I also knew of a chaffinch's nest, built in a rustic porch, which was demolished by sparrows, both nest and eggs, and the materials used in the construction of their own nest. Frequently we find eggs of some of the smaller birds pierced by a small bill (?), the contents gone, and the shells left in the nest. Who is to bear the blame for this? I think not the cuckoo, for the holes are too small to have been made by a cuckoo's bill. Now for the quadrupeds' charge: the wood and willow warblers and the chiffchaff, which build on the ground, suffer most from this source: the eggs are broken,—not merely sucked by means of a small hole,—and the fragments generally left just outside of the nest. Oftentimes the lining of the nest is scratched out. I have found several nests served in this manner during the present season, and in one case the feathers of the rightful owner (a willow warbler) lying about, showing plainly that she had not escaped with her life. I cannot help accusing mice in these instances. The only wonder is that, with so many enemies, the poor birds keep up their ranks so well as they do.

Nests of Willow Warbler and Chiffchaff.—These nests vary so much in their construction that at times one gets puzzled to distinguish the nests of the two species, more especially as the eggs vary considerably also. The nest of the chiffchaff is usually, but not always, more profusely lined with feathers than that of the willow warbler, the exterior being in most cases composed of the dry blades of a broad thin grass, while the willow warbler's nest has generally a portion of green moss in it, but I have found nests with the exterior composed entirely of dry fern-leaves. The willow warbler's eggs vary more than those of the chiffchaff, some being closely freckled with minute spots of a light red colour, others sparingly dotted with larger spots of the same colour; others again with the large spots of a deep rust colour, very nearly resembling the chiffchaff's, which range from blackish purple to rusty purple. The willow wren is much more numerous in this part than either the wood warbler or chiffchaff.

Moorhen.—May 20. Second brood hatched. June 20. About this time the parent birds drove the first brood away.

W. JEFFERY, JUN.

Batham, Chichester, July 7, 1866.

Ornithological Notes from the Isle of Wight.

By CAPTAIN HADFIELD.

(Continued from S. S. 220).

APRIL, 1866.

Linnet.—April 4th. This species is still gregarious, a considerable flock having been observed to-day. 25th. Though a small flock was seen they have begun to pair, but the males have not yet acquired the bright roseate hue—the "plumage des noces."

Wood Wren.—5th. One was seen at Luccombe.

Wryneck.—8th. First observed.

Pied Wagtail.—Paired early in the month, a nest having been found in the ivy on a house, where a pair has been known to breed for some years; probably the same couple.

Longtailed Titmouse.—11th. First observed to be paired.

Swallow.—12th. A swallow seen flying about the meadows by the sea-cliffs at Bonchurch (the first swallow was last year observed on the 10th). Thermometer 51° at 9 A.M.; wind westerly.

Nightingale.—Heard on the 13th, at Steephill Farm, and my informants (the farmer and two of his men) assure me that they were in considerable numbers, as their song was heard in all directions for two or three days: they then dispersed, probably proceeding inland, but a few, I believe, still breed in the neighbourhood. Though not heard till towards the middle of the month, they may have arrived some days before, as they are said not to be in full song until about to pair.

Goldfinch.—Paired by the middle of the month.

Willow Wren.—18th. One observed to-day in the Landslip.

Kestrel.—There has been a great accession of numbers during the month.

Blackbird, &c.—Had young fully fledged by the middle of the month. Observe that the male bird feeds the hen while sitting on the nest. Birds have been sadly puzzled when and where to build their nests, the weather being so variable, and the season so backward. No sufficient foliage of any kind but ivy, and evergreen shrubs. Two pairs of blackbirds have built nests in the ivy on my house; one near the eaves. There are four of their nests within a very narrow circle, so their cheering song may be heard early and late, and occasionally at midday. When the female finds she is observed, the building material is dropped before flying off.

Cuckoo.—On the 19th this harbinger of spring was first heard.

Swan.—My observations on the cygnet have been most abruptly terminated, it having, on the 20th, left its mate on the Bonchurch Pond about mid-day, and wandered along the public road for some distance before taking wing and alighting in the sea; though followed and pursued, the boatman could not get near it, and there is now little chance of its being captured. It was a remarkably fine bird, larger than its adult companion, and being, I believe, a male, was probably driven away. This being, I am informed, the second time the old bird has been disappointed of a partner, one cannot be surprised at his resenting it. When the cygnet was seen, a few days since, the bill was mostly of a pinkish colour, with little appearance of orange.

Moorhen.—21st. One observed about the Bonchurch Pond; the first seen there for some years, though formerly a common species enough.

Dartford Warbler.—25th. Though old birds were seen both yesterday and to-day no young have been observed as yet.

Great Titmouse.—25th. First observed to be paired.

Chiffchaff.—Has been unusually abundant throughout the month, flitting among the leafless branches of the loftier trees, and making little aërial excursions, in mere sport, I believe; while the goldencrest, which it sometimes resembles in size and habits, may be seen beneath, in search of its insect food in the budding spruce.

Yellow Wood Wren.—25th. A bird of this species first observed; two more were seen on the 26th in the willows and oaks at Luccombe.

Lesser Blackbacked Gull, Kittiwake, &c.—27th. After a close inspection of the whole face of the Culver Cliff to-day, I find that no gulls are nesting, though some forty or fifty of the above species have assembled; the kittiwakes in the proportion of three to one. Though no nests were found, the latter are evidently paired, as I observed them alight in couples, and they would sit preening their feathers side by side; besides, the male is readily distinguished, at a short distance, it being considerably the largest, though Macgillivray says it exceeds the female in length by half an inch only, and measures but one inch more in extent of wings. The raven, kestrel, daw and starling were observed in and about the cliff. The latter species has greatly increased of late years; I can remember when it was an uncommon, not to say rare, bird in the under-cliff. Numbers of swallows were seen by the way, but no martins.

Whitethroat.—Appeared about the middle of the month, but few were observed till towards the latter end.

Swift.—30th. The swift has preceded the martin, one having been seen to-day flying low, against an easterly gale.

Rook.—This species, I find, had young by the middle of the month.

MAY, 1866.

Green Linnet.—May 3rd. Observed to be nesting. This species, as well as many others, is very late in breeding, owing to the want of foliage and the low temperature; thermometer 42° only yesterday at 9 A. M.

Sparrowhawk.—4th. A nest was found to-day among the upper branches of a moderately sized beech, though the trunk was too large and smooth to be readily climbed. One of the birds was seen near the nest, which is but imperfectly concealed, the tree not being in full leaf. In a former note I mentioned having seen a sparrowhawk chased by wagtails; I have twice lately remarked the same thing. The missel thrush, another pugnacious species, will not allow a hawk to approach its nesting haunts. The moss-covered nest of this thrush, though built in the fork of a leafless tree, is not readily discovered.

Martin.—No martins were seen until the 6th, when three or four were observed about the houses on the cliffs, where three pairs bred last season, as recorded; they were flying round and over the buildings, closely inspecting the sites of their former nests; for that they are the same pairs which built there last year there can be little doubt, or why should these houses be now preferred to all others? On one there is no appearance of last year's nest, and on the other there remains but a portion of a shell, the second having been blown down or swept away by the torrents of rain.

Sand Martin.—7th. The first seen to-day.

Dartford Warbler.—7th. Though this species has young I have seen none on the wing, but observed to-day an old male carrying food.

Whitethroat.—7th. This species is more than usually abundant: in a stroll over the Downs to-day I saw a great number; indeed there was hardly a good sized furze-break without a pair or two.

Swallow.—11th. I do not think that this species can have commenced nesting, innumerable swallows having been seen to-day, after a heavy fall of rain, hawking over the water-meadows near Brading; but that they will shortly disperse there can be no doubt, few breeding in the neighbourhood.

Gray Plover.—11th. A pair of strange birds observed near Lake, but at too great a distance to be identified; however, later in the day they were again seen near Shanklin; I had but a momentary view, but that they were gray plovers I have little doubt, though not usually met with at this season.

Spotted Flycatcher.—19th. A pair first observed.

Rook.—The young did not leave their nests till the second week in May. It may be worthy of remark that these remade and repaired nests are smaller than usual, some being barely large enough to hold the young. Rook shooting commenced about the middle of the month.

Nightjar.—21st. A fine bird of this species was found this morning in a spare room on the ground-floor, having entered by the verandah-door, which had been left open till a late hour in the evening. The verandah, being thickly covered with ivy, harbours moths, which it was probably in pursuit of, or it may intentionally have taken up its quarters there. My attention was first drawn to it by hearing a strange rustling noise, and on approaching the window I found it fluttering, like a huge moth (which it somewhat resembles) against the panes of glass. I had no difficulty in securing it, as it neither pecked nor scratched, but, drawing back the head, made a kind of hissing noise, together with a hoarse sound from the throat. Though a truly nocturnal species it can discern objects at a short distance at noon-day, under a bright sunshine, for I observed that in flying round the room it would avoid the angles, though occasionally coming in contact with the ceiling, by which the wings at the flexure were slightly injured: even the pointing of a finger would cause it to hiss. The buoyancy of its flight inspires one with wonder and admiration, that of a moth hardly realizing it. I know of no bird whose plumage will bear a closer inspection, and thus to gaze on a living specimen, in perfect adult plumage, is a treat that even an ornithologist does not often enjoy. There was a sleepy look about the eyes, but towards night it became lively, and on being released darted off, though with a wavering flight, its huge wings occasionally brought together till meeting at the points, after the manner of the pigeon tribe.

Herring Gull, &c.—26th. On revisiting the Culver Cliffs to-day no gull but the herring gull was observed, and even of this species I do not believe that more than ten or a dozen pairs breed there now. On approaching the edge of the cliff two ravens rose from beneath, and their constant croaking and excited manner led me to think that their young could not be far off, and on looking over the precipice I saw a pair, almost full-grown, sitting on a ledge. Though pretty strong on the wing, when alighting they had some difficulty in obtaining a footing on a crag, and would reel about for a second or two, the pair always settling down together. The kestrel was again observed, but no peregrine falcons have I found about the cliffs, either this year or the last, though said to breed here regularly by more than one compiler of lists; however, a partridge's feather was picked up to-day on the edge of the cliff, and on a former occasion the well-picked bones of a partridge were found on the brink. Wagtails, pipits and several other species are breeding in the cliffs. On my way to the Downs I observed a pair of stonechats with their full-fledged young about them: seeing me the male flew off with the brood, while the female kept flitting on before me from bush to bush for a considerable distance.

Swan.—27th. Observing the swan on the Bonchurch Pond rushing about in a wild state of excitement, leaving a long line of broken water in its wake, I imagined that some dog had frightened or pursued it, but seeing it occasionally pause in its mad career to tear away the feathers from its flanks, I have no doubt that ticks, or other parasitic insects, were the cause of these unusual and eccentric movements, though not aware that the pure and spotless swan, like some other species, was thus afflicted.

Bluethroated Warbler.—In a former note I referred to a second bird of this species having been seen at Bonchurch: I have since ascertained that the new-comer is a male, too, having heard its song.

JUNE, 1866.

Lesser Blackbacked Gull, &c.—In the May notes I remarked that no gull but the herring gull breeds at the Culver Cliff, and other writers have said the same; but I find, by a recent visit to the spot, one pair of [lesser] blackbacked gulls still nesting there, and I moreover observe that there are at least double the number of herring gulls that I and others had supposed; but I might again have come away with a wrong impression had I not chanced to shoot a meadow pipit near the edge of the cliff. No sooner had I fired than herring gulls rose in all directions, open-mouthed and excited, screeching at me in most discordant notes, which may be likened to laughter, but when heard so near, and from so many throats at once, has anything but an agreeable sound. I was soon surrounded by about forty of them, some, in darting to and fro, venturing within thirty yards of me, but the two lesser blackbacked gulls, though occasionally mingling with the rest, generally keeping more aloof. No kittiwakes were seen. This lofty and inaccessible cliff is a favourite haunt of the meadow pipit during the breeding season: the specimen procured is a female, and both quills and tail-feathers are so worn and abraded that there is no making out which are the longest. On dissection it was found, as anticipated from the ragged state of the plumage, to be a female, the ovary filled with a cluster of eggs, mostly very minute, the largest not much exceeding a pin's head in size. In the gizzard was found nothing but beetles: thus we have in the pipit another benefactor.

[These are the beetles from that most injurious grub, the wireworm: they were of three species, Agriotes Sputator, A. obscurus and A. lineatus.—*E. Newman.*]

Martin.—Though the martin arrived early in May, it did not commence building till the latter end of the month, the weather being unseasonably cold: thermometer 50° on the 26th, at 9 A. M. On inspecting the nests, on the 4th of June, I found three in different stages of advancement; one an old nest undergoing repair; the second, in its half-finished state, looking like a gorget reversed; the third but recently commenced. 9th. There are now six nests on the same house, which I can only account for by ascribing to a social habit, there being a loftier and apparently more suitable building close to it; besides, the one selected has been recently white-washed all over, the walls of one nest coming in for a share. 13th. Little progress has been made, the weather being still unsettled: one nest has been thrown down. 16th. The martins are rebuilding on the foundation of the injured nest, to which about an inch and a half has been added, and on which they were found crouching and sheltering themselves from the gale in the evening, as if about to roost. Another pair was observed snugly ensconced in a half-finished nest. The foundation of one nest being about four inches from the eaves, I was at a loss to conjecture how it could be made sufficiently roomy, but now find that the walls are being carried out laterally, giving it an odd one-sided look. 17th. The work progressing very slowly, owing to the high wind. 18th. Continued gale and heavy rain throughout the day. 19th. Find that about a third of the walls of the shallow nest has been blown or washed down, and the poor birds are flying to and fro in a wild state of excitement, occasionally settling to examine the breach. 20th. The recently damaged nest has had part of the gap built up; to another nest half an inch or so has been added, though the one adjoining has not been touched, but the nest that is being rebuilt has had a part of the inclined wall raised an inch or more, making it even. The ousted martins have taken repossession of their nest to-day, but being molested by sparrows, it is doubtful whether they will be allowed to finish it. The weather mild and calm at last: thermometer 60° at 9 A. M. The martins are as busy as bees, and almost as numerous: I saw dozens to-day collecting mud from a public road recently watered: the chalky soil was doubtless rendered more tenacious by being trodden under foot and ground down by carriage-wheels. 21st. Thermometer 68° at 1 P.M. The martins have been heard at work throughout the day: the damaged nest has received some further repairs, and most of the others additions, except the one referred to yesterday, which is apparently forsaken. The layers are often inclined and wedge-shaped, so that the walls may be one day sloped, another day even: these layers seldom much exceed an inch in thickness at the broad part; not that this order is invariably observed, as two or more layers are sometimes sloped the same way: why this seemingly awkward mode of building is adopted it is hard to say, but since it admits more sun and wind it dries more quickly. Only one out of the six nests has even the shell completed as yet. A nest having been commenced to-day, I may now ascertain the time taken in building under more favourable circumstances. 22nd. The patch of mud, that yesterday was not readily discernible, has had a slight lateral extension, and is now about an inch and a half in width by half an inch in depth. Like other late nests it is but about four inches from the eaves. The rebuilt nest is now finished externally, the shell having been completed in nine days, or, allowing two days on account of the old foundation, eleven days; but it is fully a third less in size than usual, and has yet to be lined. A third nest, full-sized, has taken about twenty days in building. 23rd. The new nest is now about two inches wide and an inch deep; both birds have been hard at work, one occasionally turning off the other. A nest was commenced yesterday in front of the house, by a small patch of clay being placed close to another, to which it has now been joined, though the foundation is on a much higher level, so that the nest will be at least a third less in height. 25th. Little work done yesterday, which I think was partly owing to the roads not being watered and the intense heat: thermometer 73° at 1 P. M. I have remarked that after a shower double the work is done. Though rather more progress has been made to-day, but one nest has received any considerable addition, and I observe that one nest has a hole at the bottom. The house sparrows are seemingly in undisputed possession of the old nest, which is quite open at the top. 26th. The nest commenced on the 21st has had some addition, but it dries so quickly under a scorching sun, with the thermometer at 80° in the shade, that it is impossible to say how much. To the new nest in front of the house, begun on the 22nd, a large piece has been added, and it has now a very peculiar appearance, looking like a broken saucer. The reason of its being attached to another nest is now made apparent to the least observant. Instinctive master-builders! they are saving both time and labour by building on to their neighbour's gables: reason and instinct, truly, are nearly allied. 27th. The last mentioned nest has had considerably more than an inch added since yesterday, but then it must be borne in mind that the walls are a third less in extent than usual. The birds go into the nest build, and, on bringing a large quantity of mud, deposit it in two or three different places, smoothing off the inner surface by turning round as on a pivot. 30th. The nest commenced on the 21st has been completed externally, or nearly so, in the ten days, but is very small, and still too open. The shell of the new nest in front of the house is also finished in the rough to-day, being the ninth day, and is now not unlike a pine-apple in shape, with its upper side flattened at the eaves, the lower side somewhat curved and tapering to the opening, which is at the apex of the cone, its base resting on the other nest, so that it has no bottom of its own. It is difficult to say when a nest is finished, for some of them, though being lined, are quite open at the top, but may be built up, and the opening rounded off, while the eggs are incubated. They have been observed taking sea-weed to line their nests, and they collect mud from off the shore, where a rivulet falls into the sea. Though the hole in the rebuilt nest has been stopped some of the upper part has fallen away, for want of adhesiveness, I believe. There are now eight nests, but two only are of full size and well rounded. I believe, as I have already remarked (Zool. 9840), that Macgillivray was mistaken in thinking that the martin ever completes its nest, even under the most favourable circumstances, in six days, and I have shown that these hastily built or rebuilt nests are not only of smaller size, but imperfect in shape and finish, yet take nine days or more in the construction. Though saying that the construction of the nest occupies from six to ten days, he does not inform us how he arrived at this conclusion, but I think the following passage from a correspondent's communication explains it:—"I have seen them inhabited in the course of six or eight days, particularly when the former ones have been washed down." That the martin usually takes about double the time in building that Macgillivray has here stated there can be little doubt, though much depends on the weather. From twelve to fourteen days I believe to be about the average time for a full-sized nest.

Cuckoo.—A neighbour's gardener, on looking into a robin's nest on the 20th of June, was surprised to find in it a young cuckoo of the size of a thrush, which after being handled (like the young of many other species) would not remain in the nest. An endeavour is being made to bring it up by the hand, and it feeds readily enough; indeed it has a constant craving for food, as might be expected, seeing that its foster parents must be for ever feeding it. The nest was in an abrupt ivy-covered bank, where it would have puzzled any large bird but the cuckoo to have laid an egg, it being quite embedded in the ivy, where there would be no room for a cuckoo, unless seated on the edge of the nest with tail erect, which probably is the position it assumes, though its laying in the nest of the robin must be of rare occurrence.

HENRY HADFIELD.

Ventnor, Isle of Wight,
July 6, 1866.

Honey Buzzard in Suffolk.—A fine female specimen of the honey buzzard (*Falco apivorus*) was shot on the 18th of June, at Mutford, near Lowestoft. Its plumage was good and very prettily mottled on the breast. The ovary contained a cluster of eggs in a forward state of development, varying in size up to as large as the thrush's. Its stomach was filled with the remains of the spotted flycatcher's and thrush's eggs, which I was enabled to identify by discovering fragments of the egg-shells intermixed with the contents.—*T. E. Gunn; 3 West Pottergate, Norwich.*

Tawny Owl's Nest on the Ground.—The following are the particulars respecting a tawny owl's (*Strix aluco*) nest found on the ground, in North Wales, June 1, 1866:—The nest was close to the edge of a small wood of pines and beeches at Hafod-y-llyn, Merionethshire, within a stone's throw of the Festiniog Railway on one side, and a public road on the other. It was merely a hollow scraped in the dead beech-leaves *on the ground*, and sheltered on one side by the steepness of the hill, and on two others by part of an old moss-covered stump, some two feet high. The old bird did not fly off till I was close upon it, and then, by no means scared by the sunlight, made its way at once to a safe distance. The nest contained three eggs, of a pure and glossy white, and of the following measurements:—

i. Length 1 inch 11 lines, breadth 1 inch 6½ lines.
ii. „ 1 „ 11 „ „ 1 „ 6 „
iii. „ 1 „ 10 „ „ 1 „ 5½ „

There were no very old or hollow trees in the neighbourhood, which may perhaps account for the nest being on the ground.—*Charles B. Wharton; Willesden, Middlesex, June* 23, 1866.

Occurrence of the Bee-eater in Wiltshire.—A very fine male specimen of the bee-eater was shot, in the afternoon of the 4th of May, in the parish of Bishopstowe, in this county. The bird was observed in an orchard amusing himself the whole day in hawking for insects, and he is reported to have been in the habit of returning to a certain tree, which he had selected as his station, and of knocking his bill smartly against the branch, previously to swallowing the insect he had captured. A mason named Turner, in the employment of Mr. Temple, of Bishopstowe, watched the bird from the top of a cottage where he was repairing the tiles, and being attracted by the beauty of the plumage, sent for a gun, and shot it from the spot where he was working. I am informed that the bird was quite alone.—*Alfred Charles Smith; Yatesbury Rectory, Calne, June* 4, 1866.

Food of the Wood Pigeon.—In reply to your request (S. S. 310), I beg to say that I believe the whortleberry to be the chief food of the wood pigeon at this season (see Zool. 9723), and clover. Besides, ivy-berries and beech-mast have to be added to the winter "bill of fare." I have the authority of an experienced poulterer, through whose hands many dozens pass during the year, in corroboration of my own observations: he says that much charlock-seed is found in their crops, which alone is more than enough to compensate the farmer for the grain consumed.—*Henry Hadfield; Ventnor, Isle of Wight, June* 6, 1866.

The Common Crane in India.—The common crane of Europe visits India in numerous flocks during the cold weather. In the Deccan and Central India it is generally seen in small flocks of four, six or eight, to twenty, now and then in much larger numbers, especially in the Punjaub and the North-Western Provinces. It feeds chiefly on grain, committing great havoc in the wheat fields, and in rice fields in Bengal, but it also eats shoots of plants and flowers, and occasionally, it is said, insects and reptiles. On one occasion I found that the flowers of Carthamas tinctorius had been the only food partaken of; it is stated in China to devour sweet potatoes. It feeds chiefly in the morning, and rests during the day in some river or bank, returning to the fields for a short time in the afternoon. It has a fine loud trumpet-like call, chiefly heard during its flight. It leaves this country early, generally before the end of March, and breeds in Northern Asia and Europe, in marshy ground generally, occasionally, it is said, on the roofs of deserted houses. The eggs are two in number, of a greenish colour, with some brownish spots.—'*Birds of India*,' ii. p. 665.

The Demoiselle Crane in India.—This beautiful crane is found throughout the greater part of India, is more rare in the extreme south, is never seen in Malabar, nor in lower Bengal; one writer says that it is never met with below Dinapore. It is a cold weather visitor generally, only coming in late October, and its arrival, like that of the last, is hailed with joy as a sure sign that the cold weather has indeed come. It associates in large flocks, from fifty to five hundred, and chiefly frequents the vicinity of rivers, as it invariably, according to my own experience, betakes itself during the heat of the day to rivers to drink and rest, and never to tanks or jheels, as the Sarus and common crane do. One writer, however, states that he has seen and shot them in a jheel. It is very destructive to grain fields, especially to wheat in Central India, and to chenna (*Cicer arietinum*) in the Deccan. They fly with great regularity, either in a long continuous line, or in a double wedge-shaped line, and then utter their fine clanging note frequently. The demoiselle crane breeds on the ground in Northern Asia, laying two olive-gray eggs speckled with rufous. The male bird watches while the female is incubating, and fights boldly if attacked. They are said to dance among themselves, and will often seize hold of any small article, toss it up in the air and catch it as it descends. It is also stated that they occasionally eat mice, snakes, &c., lifting them up and dashing them down on the ground till quite dead. The Karkarra makes a fine flight with a Bhyri, occasionally two or three miles; it never uses its beak in self-defence, but is very apt to injure the falcon with its sharp inner claw. A well-trained Bhyri therefore always strikes this crane on the back and never on the head. The mate of the stricken quarry often turns and comes to the rescue of its companion. It is shy and difficult to approach when resting, but less so when feeding, and it is well worth a little trouble, as it is one of the best birds in India for the table, and the praises of "roast coolen" are sung by many sportsmen. The name *Kllung*, transformed into Coolen, is wrongly applied to this species by many sporting writers, it being always used for the common crane by falconers and the best shikarees. The name Karkarra appears to be nearly the same word as is used by the Mongols of Central Asia, according to Pallas, *viz.* Karkarror, and is evidently an imitation of its call. This is common in Northern Africa, and is occasionally killed in the South of Europe.—*Id.* ii. p. 667.

Ornithological Notes from Barnard Castle.—Seeing a notice in the 'Zoologist' of a pied blackbird changing colour, I thought it might be interesting to you to know that we have had one here with two white wings for the last seven years at least, without any variation: he has only been once seen this spring. I saw a woodcock on the 23rd of May, and from the short distance it flew when flushed (only a few yards), and the way it ran about afterwards, I thought it had a nest, but have been unable to find it. A specimen of a bird which I suppose to be the hen harrier was seen and shot at several times this spring, on some of the moors in this neighbourhood, and was afterwards found dead, in a state of decomposition: the watchers called it a "glead," but said it had a "ring-tail," and not forked: owing to a fall of snow after hearing of it I was unable to get the remains. I had a pair of merlins and five eggs brought me the other day: there are still one or two pairs about, and as I have not heard of their being killed I hope they have escaped. A few pairs of pied flycatchers build with us every summer, though they are considered uncommon. A bittern was killed here in February, 1865.—*Charles Chipchase; Cotherston, Barnard Castle, June* 16, 1866.

Surmullet, &c., taken at Penzance.—You may note as an interesting fact that some time last week a surmullet was taken in the drift-nets, about fifteen leagues south-west of Scilly, and in about sixty fathoms of water. My informant is the captor, R. Y. Mann, of Mousehole: he said it was of large size, which here would mean that it was a fish of over twelve inches long. You can note also that I took yesterday the "piper" and a specimen of Bloch's gurnard having the dark spot in the dorsal mentioned by Yarrell (first edition): it is the first specimen so marked which I have seen. I have also taken the "braise" or "becker" this month.—*Thomas Cornish; Penzance, June* 30, 1866.

Trifurcated Hake and Smooth Serranus at Penzance.—I have taken the trifurcated hake again this week. Mr. Humphry Davy took, on Wednesday, and handed to me the smooth serranus of Yarrell (the "comber" of Couch). Mr. Couch mentions it as not an uncommon fish, but this is only the second specimen I ever saw in this Bay.—*Id.; July* 14, 1866.

Fresh-water Eels in Salt Water.—Mr. Davy has also just taken several large fresh-water eels in salt water. They were taken yesterday in a draw sean just at the mouth of the Harbour, and upwards of 500 yards from any fresh water.—*Id.*

PS. After writing the above, I mentioned the fact of fresh-water eels having been taken in the sea to my boatman, who knows just as much about fish as I do (he has been with me fifteen years), and he assured me that in the course of last summer he saw fresh-water eels taken in a shrimping-net under low-water mark between the Mount Pier-heads. This is more extraordinary than the fact which I recorded, inasmuch as absolutely no fresh water at all flows into the Mount Harbour, and there is none nearer than the mouth of Marazion River, which is very much fouled by mining operations, is nearly half a mile distant, and is separated from the Mount in the straight line by a deep channel of sea, partly rocky and partly sand in the bottom. At low water there would be a communication by land between the mouth of the river and the back of the Mount Pier, but it would be by a circuit of more than a mile, and it does not appear to be probable that the eels went this way. Besides which if they did they must have afterwards found their quarters in pure salt water endurable.—*Id.; July* 23, 1866.

Smooth-tailed Stickleback in Norfolk.—In dissecting an example of the spoonbill, recorded in the 'Zoologist' (Zool. 9418), I obtained three specimens of the three-spined stickleback, in perfect condition, from its throat: I also found its stomach to contain several others, but in a state of decomposition. I identified the specimens as the smooth-tailed species (*Gasterosteus leiurus*), mentioned by Yarrell, in his 'History of British Fishes' (vol. i. p. 81). I forwarded two of the above examples to Dr. J. E. Gray, of the British Museum, who confirmed my impression, but appears to consider that species only one of the many varieties of the common three-spined kind.—*T. E. Gunn; Norwich, June*, 1866.

Occurrence of the Allice Shad (Alosa communis) *on the Aberdeenshire Coast.*—A female specimen of the above rather rare fish north about here was taken on the 7th of June, in a net set for salmon, near Pennan Head, on the estate of Auchmidden. It may be of interest to at least some of the readers of the 'Zoologist' to learn that the specimen was exceedingly full of ova or spawn, the grains large, of a reddish yellowish colour, and seemingly ready to be extruded.—*Thomas Edward; Banff, July* 11, 1866.

Ray's Bream near Liskeard.—A beautiful specimen of that rare fish, Ray's bream (*Brama Rayii*) was washed on shore here on the 4th instant; it was brought to me before it was quite dead. Mr. Couch, in his 'History of British Fishes,' gives an excellent figure of it, but it is quite impossible to paint the brilliant metallic mirror-like appearance, as seen in the living fish.—*Stephen Clogg; Looe, July* 16, 1866.

Spider or Mouse.—In my communication to the 'Zoologist' (S. S. 105), it will be seen that I refrained from commenting on Mr. Birchall's "Note on the Field Mouse" (S. S. 8) as much as I possibly could, but as he has again referred to the same subject in the 'Zoologist' for June (S. S. 284), I beg to offer a few reasons, derived from his communications, why I think it could not be possible for a mouse or mice to be the agents in causing the deposition of moths' wings, as seen by him in the cave at Ilkley. If mice dine at night, when the Noctuæ are on the wing, could they possibly capture the great number of moths required for such a deposit as described by Mr. Birchall? or if, on the other hand, they dine by day, is it probable they would take the trouble to drag so many hundreds of moths into an open cave merely to eat them there? or could they do so without causing considerable damage to the wings or leaving a trace of their teeth on them? I think all these questions may be safely answered in the negative. Mr. Birchall acquits birds and bats, because he "found no other traces of their presence," and, without saying he found any traces of mice, he jumps to the conclusion that they must be the agents, and thinks those conclusions confirmed because, on setting a trap in the cave, an unfortunate mouse falls a victim to his snare; this, I think, is not evidence against the mouse, as I believe field mice may be caught almost anywhere if a trap is set for that purpose, their abundance and prowling propensities being such that they pry into every nook and corner when seeking their food, which I have always considered to be of a vegetable kind. Mr. Birchall tells us, in his first communication, "In one corner was a spider's web, from which large numbers of wings were suspended, no doubt carried there by gusts of wind," yet in his reply he writes, "very few wings were under the web or *near it at all.*" How can he reconcile the two statements? and surely the gusts of wind which would be likely to raise the wings to the web would scatter the wings "in the corner," as well as those "nearer the entrance, just where a current of air would not deposit them." The reply is so full of contradictions to his first communication that I think Mr. Birchall must have forgotten what he wrote at first, and suits his reply, as he thinks, to his own case, and with a determination that the mouse shall be the marauder. It appears to me to be a mere quibble to say the spider "was not even seen, much less caught." Nature, no doubt, has given spiders sufficient instinct to know where to place their webs, so as to procure a proper supply of food, which, in this instance, appears to have been most successfully chosen; and no one, I think, would attempt to deny that a web a foot square would be more "competent for the amount of work required by Mr. Clogg," than the mouth of a mouse would be. Had Mr. Birchall taken the trouble to do so, I think he might have both seen and caught the spider. Had the wings been found in the mouse's "den," instead of being scattered over the cave as well as hanging on the web, the evidence would be strong against the mouse; but as the description of the case at first given by Mr. Birchall stands, I think the evidence convicts the spider. Out of consideration of the space they would occupy in the 'Zoologist,' I refrain from noticing any more of the numerous contradictions and improbabilities of Mr. Birchall's note.—*Stephen Clogg; Looe, July* 16, 1866.

Descriptions of Lepidopterous Larvæ. By EDWARD NEWMAN.

MACROGLOSSA BOMBYLIFORMIS.

The egg is laid singly on the leaves of Scabiosa succisa (devil's bit scabious), on which plant the larva feeds. The larva, for which I am indebted to Mr. Doubleday, was full-fed on the 20th of July, and rested on its food-plant in a nearly straight position, the anterior extremity scarcely raised, but the legs not clasping its food. Head prone, rounded on the crown, covered with minute warts, each of which emits a short and slender bristle, scarcely narrower than the 2nd segment, into which, however, it is sometimes partially received: 12th segment culminating in a mediodorsal horn, which is directed backwards and very slightly turned upwards at the tip: the segments of the body are divided transversely into sections, each of which is beset with scabrous points; and each point emits a short and fine bristle; the caudal horn is beset in like manner with scabrous points and minute bristles. Colour of the head pale dull green, the scabrous points being white; dorsal area of the body still paler green, the scabrous points being white; there is a narrow mediodorsal stripe slightly darker than the general area, and apparently due to the presence of food in the alimentary canal seen through the skin; on each side half way between the spiracles and this mediodorsal stripe is a double longitudinal stripe commencing on the 3rd segment and terminating in the caudal horn; the upper half of this stripe is pinkish purple, the lower half white; the horn itself being also of a pinkish purple, rather darkest above: the spiracles are reddish brown with a white spot at each extremity, and each spiracle is situated in an oblique patch of pinkish purple, bordered especially above with whitish green; these oblique markings have a different direction to those of such normal Sphingidæ as constitute the genera Sphinx, Smerinthus, &c., their dorsal extremities tending forwards as in some of the Notodontidæ, a very noteworthy peculiarity, because it breaks down one of the most obvious characters for distinguishing the larvæ of these two families; the anterior spiracle has no such ornamentation; ventral surface, including the claspers and legs, dull pinkish purple.

MACROGLOSSA FUCIFORMIS.

Feeds on the leaves of Lonicera periclymenum (common honeysuckle), and is full-grown about the middle of July, when it rests in nearly a straight position, the anterior extremity being very slightly elevated, and the legs crowded together near the mouth. Head prone, narrower than the 2nd segment, into which it is partially received; the crown is rounded and not conspicuously divided: body nearly cylindrical, slightly attenuated anteriorly, the divisions of the segments indistinctly marked, and each segment is transversely divided into sections, which are beset with a series of minute slightly raised warts, giving the surface the appearance of shagreen; the 12th segment is furnished with an acutely-pointed scabrous horn, which is nearly straight, but in a very slight degree bent upwards at the extremity. Colour of the head dull rather glaucous green: dorsal surface of the body glaucous green, with a darker mediodorsal stripe, evidently due to the proximity of the intestinal canal, visible through the skin; lateral area apple-green, the series of minute warts already described being yellow; the spiracles are reddish, with a white dot at each extremity; each spiracle occupies the centre of a roundish purple-brown spot, which is again surrounded by an indistinct yellow ring: the whole of the ventral surface, including the legs and claspers, purple-brown, the division between this and the bright green of the sides being very marked; the caudal horn is of the same purple-brown colour, and rather paler at the tip. I am indebted to Mr. Doubleday for the opportunity of describing this larva, specimens of which I had never previously seen.

HADENA SUASA.

In confinement feeds voraciously on Polygonum aviculare (common knot-grass), and is full fed about the third week in July. It eats principally by night, resting by day, in a straight position, on those stems of its food-plant which are prostrate on the ground; but, when disturbed, it elevates the anterior part of its body, tucks its head in tightly, and assumes an elegant and most Sphinx-like attitude, even more striking than that of Sphinx Ligustri. If the food-plant be shaken it falls to the ground in a tight compact ring. Head narrower than the 2nd segment, into which it is partially received when at rest: body almost uniformly cylindrical, but slightly attenuated at both extremities, the divisions of the segments decidedly but not deeply marked: the surface smooth and velvety, but exhibiting, under a lens, a few minute short hairs. Colour various; that of the head and body of the same hue; the prevailing varieties are obscure grass-green and olive-brown, as in so many other of our Noctuidæ; the head sometimes plain, sometimes reticulated with darker markings: the dorsal always darker than the ventral area of the body, and divided immediately below the spiracles by a bright and very conspicuous stripe, which extends from the head into the anal claspers: this stripe is bright ochreous-yellow, narrowly margined above by dark umber-brown in the browner specimens, by black in the greener; and margined below by a paler stripe, which in some specimens has a tinge of brickdust red; the dorsal surface has three indistinct narrow stripes darker than the ground colour, and dividing the dorsal area into four equal parts: these three stripes are scarcely perceptible in the greener specimens, but in some of the browner specimens are very conspicuous, and interrupted at the divisions of the segments, and each of the exterior ones is thus divided into a series of separate markings, each of which is slightly oblique, and together they constitute a tolerably regular series on each side of the back: on each side of each segment, equidistant between the mediodorsal and the interrupted stripe, is a double dot, half black and half white; and the entire surface is reticulated with smoky black, and dotted with white: the ventral is not only paler than the dorsal area, but is slightly transparent, and, like the dorsal area, is slightly reticulated with darker, and dotted with lighter markings. I am indebted to Mr. Campbell for an abundant supply of the larva of this species, which do not appear to me recognizable by any previously published description.

EDWARD NEWMAN.

Leominster, July 20, 1866.

20 AU 66

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